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| EXAMINER |
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BAREFORD, KATHERINE A

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| ART UNIT | PAPER NUMBER |
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1762

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,988

Applicant(s)

HEIMANN ET AL.

Examiner

Katherine A. Bareford

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2006 has been entered.

The amendment filed with the RCE submission of July 2, 2006 as been received and entered. With the amendment, claims 1-27 are now pending for examination.

Specification

2. The disclosure is objected to because of the following informalities: (1) at page 6, lines 10 and 12, the blanks should be filled in. (2) in the specification, at page 1, the US Patent number of the parent case should be inserted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-²⁷~~25~~ are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent claims 1, 20, and 26 now merely require treating an article or a substrate. However, the disclosure as originally filed required that the article/substrate be "metallic" or "conductive". See pages 1-2. Therefore, the claim that any substrate can be used is new matter that broadens the original requirements.

Claim 21 now requires rinsing the treated substrate and that the method is free of chromates. The original claims required only that the medium was chromate free or that the process of preparing, contacting and removing was chromate free. In the specification, it is clear only that the final treated article is chromate free and that only the process of the electrolytic or electroless bath portion of the overall process is encompassed as "chromate-free". The rinse step of applicant is stated to be a post-treatment step of the inventive process, i.e., it is not part of the inventive process that is said to be chromate free. Further, applicant's own disclosure allows for a chromate rinse, therefore, it is clear that the rinsing step is not considered to be part of the "chromate-free" portion of the inventive process.

5. In the amendment of July 2, 2006, applicant argues that they believe that they have overcome all the 35 USC 112 rejections, however, the above rejection as to claim 21 remains as the claims have not been clarified over the above rejection, and the new rejection as to claims 1, 20 and 26 has been provided as to the claimed article.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 4, it should be clarified if "water soluble" refers to all the members of the group (stannates, molybdates, vanadates, cerium compounds), or just the stannates.

Claim 4, line 1, "the surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 5, line 2, "a second drying" is confused as neither claim 5 nor parent claim 1 require a "first drying".

Claim 6, line 2, "the last dried surface" is confusing, as only an article is previously referred to.

Claim 7, lines 1-2, "after said drying" lacks antecedent basis as no drying is referred to in parent claim 1.

Claim 11, line 1, "the substrate" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 14, line 2, "the surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 15, lines 2 and 3, "the metal surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 18, line 1, "the surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 20, line 5, "the surface" should be "the substrate" to correspond to the term used in the preamble.

Claim 21, line 7, "the surface" should be "the article" to correspond the the term used in the preamble and above.

Claim 22, lines 1-2, "the surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 23, line 2, "the surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 24, line 2, "the surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

Claim 25, line 2, "the surface" should be "the article" for proper antecedent basis after the amendment to claim 1 to use only "the article".

The other dependent claims do not cure the defects of the claims from which they depend.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 2, 4-12, 15, 16, 19 and 22-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Maurer et al (US 3444007).

Claim 1: Maurer teaches a method for treating an article. column 1, lines 15-30. A medium is prepared having a basic pH. Column 2, lines 10-25. The medium has water and can include water soluble molybdates and cerium compounds. Column 1, lines 15-

30 and Table IV, column 9. At least a portion of the article is contacted with the medium. Column 1, lines 20-30. The article is removed from the medium. Column 1, lines 20-30. The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 4, lines 5-30 (it is only after the above described process that hexavalent chromate can be added through the chromic acid rinse. Furthermore, even if the "chromic acid" rinse is used, it is not required to have hexavalent chromium. Hexavalent chromium is merely present in a preferred rinse).

Claim 2: the medium is heated to a temperature that can be between 50 and 100 degrees C prior to coating. column 3, lines 65-75.

Claim 4, 11, 23, 24, 25 : the article can contain zinc. Column 4, lines 25-35.

Claim 5: the method can also include rinsing in an aqueous medium and drying. Column 4, lines 20-30.

Claim 6: at least one coating can be applied to the last dried surface. Column 4, lines 20-30 and column 5, lines 10-15.

Claim 7: after the article is dried after removal from the medium an alkyd coating can be applied. Column 5, lines 10-15 (Dulux is a trademark for DuPont alkyd paints).

Claim 8, 23: the medium can contain sodium hydroxide and sodium stannate. Column 2, lines 10-15 and 59-65.

Claim 9, 24: the medium can contain sodium hydroxide and sodium molybdate. Column 2, lines 10-15 and 60-65 and column 9, Table IV.

Claim 10: the medium can contain sodium molybdate hydrate and cerium nitrate hydrate. Column 2, line 10-15 and column 9, Table IV (as the sodium molybdate and cerium nitrate are in their hydrate form in aqueous solution).

Claim 12: the medium can further comprise a dopant. Column 1, lines 15-30 (more than one metal ion can be present). As well, the water can be a diluent.

Claim 15: the metal surface of the article can be rinsed. Column 4, lines 20-30.

Claim 16, 25: the medium can comprise sodium hydroxide and cerium nitrate. Column 2, lines 10-15 and column 9, Table IV.

Claim 19: the medium can be electroless. Column 3, lines 60-70 .

Claim 22: the surface can be dried at a temperature of 375 degrees F, or 191 degrees C. Column 5, lines 10-15.

10. Claims 1, 2, 4, 5, 8-12, 15, 18, 19, 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Ravenscroft et al (US 6309476).

Claim 1: Ravenscroft teaches a method for treating an article. Column 1, lines 5-15. A medium is prepared having a basic pH. Column 14, lines 15-60. The medium has water and can include water soluble molybdates and stannates. Column 14, lines 15-60, column 11, lines 25-35 and column 12, lines 30-45. At least a portion of the article is contacted with the medium. Column 12, lines 30-45. The article is removed from the medium. Column 12, lines 30-45. The method and the substrate provide an article that

comprises about 0 wt% hexavalent chromate. Column 14, line 15 through column 15, line 25 (no hexavalent chromium is used).

Claim 2: the medium is heated to a temperature that can be between 50 and 100 degrees C prior to coating. Column 3, lines 50-60.

Claim 4, 11, 23, 24 : the article can contain iron or steel. Column 4, lines 25-35.

Claim 5: the method can also include rinsing in an aqueous medium and drying. Column 6, lines 10-20 (after the process drying would occur).

Claim 8, 23: the medium can contain sodium hydroxide and sodium stannate. Column 12, lines 30-45.

Claim 9, 24: the medium can contain sodium hydroxide and sodium molybdate. Column 11, lines 25-35.

Claim 10: the medium can contain sodium molybdate hydrate and sodium stannate hydrate.

Column 11, lines 25-35 and column 12, lines 30-45 (as the sodium molybdate and sodium stannate are in their hydrate form in aqueous solution).

Claim 12: the medium can further comprise a dopant. Column 12, lines 30-45 (more than one metal ion can be present). As well, the water can be a diluent.

Claim 15: the metal surface of the article can be rinsed. Column 12, lines 30-45.

Claim 18: prior to coating, the surface can be treated with an acid. Column 13, lines 5-10.

Claim 19: the medium can be electroless. Column 14, lines 15-60.

11. Claims 1, 2, 4-6, 9-13, 15, 19, 21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Houlihan, deceased et al (US 3929514).

Claim 1: Houlihan teaches a method for treating an article. Column 1, lines 5-10. A medium is prepared having a basic pH. Column 2, lines 1-10. The medium has water and can include water soluble molybdates. Column 1, lines 45-65, column 2, lines 15-20 and column 4, lines 55-60. At least a portion of the article is contacted with the medium. Column 3, lines 55-60. The article is removed from the medium. Column 3, lines 55-60. The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 3, lines 15-25 (it is only after the above described process that hexavalent chromate can be added through the optional chromic acid rinse – no rinse can be provided or a phosphoric acid rinse can be provided. Furthermore, even if the “chromic acid” rinse is used, it is not required to have hexavalent chromium. Hexavalent chromium is merely present in a taught rinse).

Claim 2: the medium is heated to a temperature that can be between 50 and 100 degrees C prior to coating. Column 2, lines 60-65.

Claim 4, 11, 24 : the article can contain zinc. Column 1, lines 45-50.

Claim 5: the method can also include rinsing in an aqueous medium and drying. Column 3, lines 55-65.

Claim 6: at least one coating can be applied to the last dried surface. Column 1, lines 50-55 and column 3, line 65 through column 4, line 5.

Claim 9, 24: the medium can contain sodium hydroxide and sodium molybdate.

Column 2, lines 15-20 and column 4, lines 55-60.

Claim 10: the medium can contain sodium molybdate hydrate. Column 4, lines 55-60.

Claim 12: the medium can further comprise diluent. Column 2, lines 35-40 (the water).

W Claim 13: the water soluble components can^{be}₁ be about 5 wt%. Column 2, lines 35-55.

Claim 15: the metal surface of the article can be contacted with an acid. Column 3, lines 15-20.

Claim 19: the medium can be electroless. Column 3, lines 55-65.

12. Claims 1, 3, 4, 11-13, 15 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanagata et al (US 5057335).

Claim 1: Hanagata teaches a method for treating an article. Column 2, lines 5-20. A medium is prepared having a basic pH. Column 2, lines 45-50. The medium has water and can include water soluble stannates, molybdates and vanadates. Column 2, lines 30-40. At least a portion of the article is contacted with the medium. Column 2, lines 50-60. The article is removed from the medium (since the coating is finished). The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 2, lines 25-60 (no chromates are required to be present).

Claim 3: the medium can contain colloidal silica. Column 2, lines 25-40.

Claim 4, 11 : the article can contain steel or iron. Column 2, lines 50-60.

Claim 12: the medium can further comprise a dopant. Column 2, lines 25-50
(more than one metal ion can be present and other compounds can be present). As
well, the water can be a diluent.

Claim 13: the amount of water soluble compounds can be 3 wt%. Column 2, lines
45-50.

Claim 15: the metal surface of the article can be dried. Column 2, lines 50-60 (the
laser acts to dry).

Claim 19: the medium can be electroless. Column 2, lines 15-25 .

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of
the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the
various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1, 2, 4, 5, 10, 12, 14, 15, 17-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsugawa (US 4386139).

Claim 1: Nakatsugawa teaches a method for treating an article. Column 1, lines 5-10. A medium is prepared having a basic pH. Column 4, lines 40-50. The medium is a solution and can include water soluble vanadates. Column 4, lines 15-50. At least a portion of the article is contacted with the medium. Column 5, lines 50-65. The article is removed from the medium. Column 5, lines 50-65. The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 4, lines 45-60 (a chromic acid treated can be supplied but is not required. Furthermore, even if the "chromic acid" rinse is used, it is not required to have hexavalent chromium. Hexavalent chromium is merely present in a preferred rinse).

Claim 4: the article can contain copper. Column 5, lines 50-60.

Claim 5: the method can also include rinsing in an aqueous medium and drying. Column 5, lines 65-66.

Claim 10: the medium can contain ammonium metavanadate. Column 5, lines 50-55.

Claim 12: the medium can further comprise a dopant. Column 5, lines 50-55 (more than one metal ion can be present). As well, the water can be a diluent.

Claim 14: a current is supplied to the medium and the substrate comprises the cathode. Column 4, lines 1-20.

Claim 15: the metal surface of the article can be rinsed. Column 5, lines 65-66.

Claim 17: the medium can comprise sodium hydroxide and ammonium metavanadate. Column 5, lines 50-55.

Claim 18: prior to coating, the article can be treated with acid. Column 3, lines 30-35.

Claim 19: the medium can be electroless. Column 3, lines 60-68.

Claim 21: the "article" can comprise zinc, as the plating method of Nakasugawa includes applying zinc, thus providing that the article will include zinc. Column 3, lines 25-60.

Nakatsugawa teaches all the features of these claims except that (1) the solution comprises water and (2) the medium heating features (claim 2).

However, Nakatsugawa teaches that when performing the electroplating method the materials are in solution and the zinc plating bath may have conventional composition and temperature as for usual zinc electroplating. Column 4, lines 10-15. It is the Examiner's position that it is well known in the art of zinc electroplating from a

bath that the bath can be aqueous and that the bath can be heated to between 50 to 100 degrees C prior to coating. If applicant disagrees, he should so state on the record in response.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakatsugawa to use a bath solution comprising water and to heat the bath as claimed in order to provide desirable coating conditions because Nakatsugawa teaches to use conventional coating conditions and it is the Examiner's position that the use of a bath containing water and a heated bath as claimed would be well known in the art to be conventional.

16. Claims 7, 8, 16, 22 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Houlihan, deceased et al (US 3929514) in view of Maurer et al (US 3444007).

Houlihan teaches all the features of these claims, as discussed in the 35 USC 102 rejection using Houlihan above, except (1) the type of paint applied (claim 7), (2) the use of sodium stannate (claim 8, 23), (3) the use of cerium nitrate (claim 16), (4) the drying temperature (claim 22). Houlihan does teach that it is intended to be an improvement over Maurer (US 3444007). Column 1, lines 10-40. Houlihan also teaches to apply paint after coating (column 3, line 65 through column 4, line 5), that a water soluble metal ion can be selected from tin (column 1, lines 55-60), and that after treatment the article can be dried with hot air (column 3, lines 60-65).

Maurer teaches a method for treating an article. column 1, lines 15-30. A medium is prepared having a basic pH. Column 2, lines 10-25. The medium has water and can include water soluble sodium stannate, molybdates and cerium compounds, such as cerium nitrate. Column 1, lines 15-30, column 2, lines 60-70 and Table IV, column 9. At least a portion of the article is contacted with the medium. Column 1, lines 20-30. The article is removed from the medium. Column 1, lines 20-30. The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 4, lines 5-30 (it is only after the above described process that hexavalent chromate can be added through the chromic acid rinse. Furthermore, even if the "chromic acid" rinse is used, it is not required to have hexavalent chromium. Hexavalent chromium is merely present in a preferred rinse). The surface can be dried at a temperature of 375 degrees F, or 191 degrees C. Column 5, lines 10-15. After the article is dried after removal from the medium an alkyd coating can be applied. Column 5, lines 10-15 (Dulux is a trademark for DuPont alkyd paints).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Houlihan to use sodium stannate and/or cerium nitrate in the medium as suggested by Maurer in order to provide desirable metal ions because Houlihan teaches to use metal ions in a bath, including tin ions, and teaches an improvement on Maurer by adding further ingredients, and Maurer teaches that desirable metal ions can be provided from sodium stannate and cerium nitrate. It further would have been obvious to modify Houlihan to use a drying temperature in

the claimed range and to use an alkyd paint as suggested by Maurer in order to provide desirable after treatment, because Houlihan teaches to dry the article with hot air after removing and to apply paint, and Maurer teaches that desirable drying temperatures for a similar process are in the claimed range and that a desirable paint to apply afterwards is an alkyd paint.

17. Claims 6, 7 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravenscroft et al (US6309476) in view of Maurer et al (US 3444007).

Ravenscroft teaches all the features of these claims, as discussed in the 35 USC 102 rejection using Ravenscroft above, except (1) applying the further coating to a dried surface (claims 6-7) and (2) the drying temperature (claim 22). Ravenscroft does teach to apply a top coat over the treated surface that can be polymer based. Column 15, lines 15-20.

Maurer teaches a method for treating an article. Column 1, lines 15-30. A medium is prepared having a basic pH. Column 2, lines 10-25. The medium has water and can include water soluble sodium stannate, molybdates and cerium compounds, such as cerium nitrate. Column 1, lines 15-30, column 2, lines 60-70 and Table IV, column 9. At least a portion of the article is contacted with the medium. Column 1, lines 20-30. The article is removed from the medium. Column 1, lines 20-30. The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 4, lines 5-30 (it is only after the above described process that

hexavalent chromate can be added through the chromic acid rinse. Furthermore, even if the "chromic acid" rinse is used, it is not required to have hexavalent chromium. Hexavalent chromium is merely present in a preferred rinse). The surface can be dried at a temperature of 375 degrees F, or 191 degrees C. Column 5, lines 10-15. After the article is dried after removal from the medium an alkyd coating can be applied. Column 5, lines 10-15 (Dulux is a trademark for DuPont alkyd paints).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ravenscroft to dry the article and then apply the post treatment coating, to use a drying temperature in the claimed range and to use an alkyd polymer as suggested by Maurer in order to provide desirable after treatment, because Ravenscroft teaches to apply a top coat to the article after treatment, and Maurer teaches that after treatment it is desirable to dry the article with a drying temperature in the claimed range and then apply the post treatment coating such as an alkyd paint.

18. Claims 13, 17 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer et al (US 3444007) in view of Hanagata (US5057335).

Maurer teaches all the features of these claims, as discussed in the 35 USC 102 rejection using Maurer above, except (1) the amounts of materials used (claim 13) and (2) the use of ammonium metavanadate (claims 17 and 21). Maurer does teach that good results have been obtained from high concentrations of the metal ions, and that

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any quantity up to the limits of solubility have been used satisfactorily. Column 2, line 65 through column 3, line 10.

Hanagata teaches a method for treating an article. Column 2, lines 5-20. A medium is prepared having a basic pH. Column 2, lines 45-50. The medium has water and can include water soluble stannates, molybdates and vanadates. Column 2, lines 30-40. At least a portion of the article is contacted with the medium. Column 2, lines 50-60. The article is removed from the medium (since the coating is finished). The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 2, lines 25-60 (no chromates are required to be present). The amount of water soluble compounds can be 3 wt%. Column 2, lines 45-50.

It is the Examiner's position that ammonium metavanadate is a well known water soluble form of vanadate. If applicant disagrees, he should so state on the record.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maurer to use ammonium vanadate in the medium and to use an amount such as 3 wt% water soluble compounds as suggested by Hanagata in order to provide desirable metal ions and treatment because Maurer teaches to use metal ions in a bath and that water soluble compounds can be used up to the limits of solubility and Hanagata teaches a desirable amount of water soluble compounds to use and that vanadate provides desirable metal ions, and it is further the Examiner's position that ammonium metavanadate is well known to be a desirable water soluble form of vanadate.

19. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heimann et al (US 6149794) (hereinafter Heimann '794) in view of Maurer et al (US 3444007).

Heimann '794 teaches a process for depositing a mineral containing coating upon a metallic or electrically conductive surface. Column 2, lines 35-50. The process uses an aqueous medium. Column 4, lines 15-20. The medium can also contain water soluble salts of vanadium, molybdenum, etc. Column 3, line 65 through column 4, line 10. At least a portion of the article is contacted with the medium. Column 6, lines 60-68. The article is removed from the medium. Column 7, lines 1-5. No hexavalent chromium can be used. Column 5, lines 5-10.

Claim 3: the medium can contain colloidal silica. Column 4, lines 25-30.

Claim 4, 11, 23, 24, 25: the surface can be zinc or steel. Column 3, lines 30-40.

Claim 5: the treatment can include aqueous rinsing and drying. Column 3, lines 40-60.

Claim 6: the treatment can be used before coating. Column 5, lines 5-10. After the treatment the surface is dried. Column 7, lines 5-10.

Claims 9, 10, 17, 24: salts of molybdenum and vanadium can be used. Column 4, lines 1-10.

Claim 12: the medium can further include water dispersible polymers. Column 4, lines 20-25.

Claim 13: the amount of metal salts can be tailored for use. Column 4, lines 15-25.

Claim 14: the coating can be applied by electroplating. Column 4, lines 20-40.

Claim 15: prior to coating the article can be dried and rinsed. Column 3, lines 40-55.

Claim 18: prior to coating the article can be contacted with a basic medium.
Column 3, lines 49-50.

Claim 20: water soluble molybdenum salts and electroplating can be used.
Column 4, lines 1-10 and 20-40.

Claim 21: water soluble vanadium salts can be used and the article can be zinc or steel. Column 3, lines 30-35 and column 4, lines 1-10. The article can be rinsed with water after treatment. Column 8, lines 60-65.

Claim 26: the article can be made of zinc or steel. Column 3, lines 30-35. The article can be pretreated by rinsing in a solution comprising at least one dopant. Column 4, lines 5-15. Then the article can be treated using an aqueous solution containing salts of molybdenum or vanadium. Column 4, lines 1-25.

Claim 27: the dopant can comprise at least one water soluble metal salt. Column 4, lines 1-20.

Heimann '794 teaches all the features of these claims except (1) the basic pH, (2) the heating of the medium (claim 2), (3) the post treatment coating (claims 7), (4) the sodium hydroxide (claims 8-9), (5) the sodium stannate (claim 8, 10, 23), (5) the sodium molybdate (claim 9, 10, 24), (6) the precise amounts of water soluble compounds (claim

13), (7) the cerium nitrate (claim 16, 25), (8) the ammonium metavanadate (claim 17, 21), (9) the electroless plating (claim 19), (10) the drying temperature (claim 22).

Maurer teaches a method for treating an article. Column 1, lines 15-30. A medium is prepared having a basic pH. Column 2, lines 10-25. The medium has water and can include water soluble sodium stannate, molybdates and cerium compounds, such as cerium nitrate. Column 1, lines 15-30, column 2, lines 60-70 and Table IV, column 9. At least a portion of the article is contacted with the medium. Column 1, lines 20-30. The article is removed from the medium. Column 1, lines 20-30. The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate. Column 4, lines 5-30 (it is only after the above described process that hexavalent chromate can be added through the chromic acid rinse. Furthermore, even if the "chromic acid" rinse is used, it is not required to have hexavalent chromium. Hexavalent chromium is merely present in a preferred rinse). The surface can be dried at a temperature of 375 degrees F, or 191 degrees C. Column 5, lines 10-15. After the article is dried after removal from the medium an alkyd coating can be applied. Column 5, lines 10-15 (Dulux is a trademark for DuPont alkyd paints). The medium is heated to a temperature that can be between 50 and 100 degrees C prior to coating. column 3, lines 65-75. The article can contain zinc. Column 4, lines 25-35. The method can also include rinsing in an aqueous medium and drying. Column 4, lines 20-30. At least one coating can be applied to the last dried surface. Column 4, lines 20-30 and column 5, lines 10-15. After the article is dried after removal from the medium an alkyd coating

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can be applied. Column 5, lines 10-15 (Dulux is a trademark for DuPont alkyd paints).

The medium can contain sodium hydroxide and sodium stannate. Column 2, lines 10-15 and 59-65. The medium can contain sodium hydroxide and sodium molybdate.

Column 2, lines 10-15 and 60-65 and column 9, Table IV. The medium can contain sodium molybdate hydrate and cerium nitrate hydrate. Column 2, line 10-15 and column 9, Table IV (as the sodium molybdate and cerium nitrate are in their hydrate form in aqueous solution). The medium can further comprise a dopant. Column 1, lines 15-30 (more than one metal ion can be present). As well, the water can be a diluent. The medium can be electroless. Column 3, lines 60-70. As to the amount of materials used, Maurer does teach that good results have been obtained from high concentrations of the metal ions, and that any quantity up to the limits of solubility have been used satisfactorily. Column 2, line 65 through column 3, line 10.

It is further the Examiner's position that ammonium metavanadate is a well known water soluble form of vanadium salts. If applicant disagrees, he should so state on the record.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Heimann '794 to use (1) the basic pH, (2) the heating of the medium, (3) the post treatment coating material, (4) the sodium hydroxide, (5) the sodium stannate, (5) the sodium molybdate, (7) the cerium nitrate, (9) the electroless plating, and (10) the drying temperature as suggested by Maurer with an expectation of desirable coating results, because Heimann '794 teaches a coating process using a

solution of metal salts, and Maurer teaches desirable materials and conditions surrounding the use of coating processes with metal salts. It further would have been obvious to modify Heimann '784 in view of Maurer to perform routine experimentation to (6) optimize the amount of salts given that both references teaches that ranges of salts can be used for the desired purpose. It further would have been obvious to modify Heimann '794 in view of Maurer to use (8) ammonium metavanadate as a salt form of vanadium with an expectation of desirable results given that ammonium metavanadate is a well known water soluble form of vanadium.

Response to Arguments

20. Applicant's arguments filed July 2, 2006 have been fully considered but they are not persuasive.

(A) As to the rejection of claims 1+ using Maurer, the Examiner has reviewed applicant's arguments, however, the rejection is maintained. As discussed in the rejection above, claim 1 requires "the method and the article comprise about 0 wt% hexavalent chromate¹". The method and the substrate provide an article that comprises about 0 wt% hexavalent chromate in Maurer (column 4, lines 5-30). It is only after the claimed process steps (i.e. "the process²") that hexavalent chromate can be added through the chromic acid rinse of Maurer. Furthermore, even if the "chromic acid" rinse is used, it is not required to have hexavalent chromium. Hexavalent chromium is merely present in a preferred rinse.

(B) As to the rejection of claim 20 using Nakatsugawa, this claim is not rejected using Nakatsugawa.

(C) As to the rejection of claim 21 using Nakatsugawa, the Examiner has reviewed applicant's arguments, however, the rejection is maintained under 35 USC 103 as provided above. In claim 21, the claim provides "an article comprising . . . zinc . . .". As discussed in the rejection above, the "article" can comprise zinc, as the plating method of Nakasugawa includes applying zinc, thus providing that the article will include zinc (column 3, lines 25-60).

(D) As to the rejection of claims 13, 17 and 21 using Maurer, the Examiner has reviewed applicant's arguments, however, the arguments are moot, as the claims are now rejected using Maurer et al (US 3444007) in view of Hanagata (US5057335) as discussed above. Moreover, the arguments as to the amounts of claim 13 only would apply to claim 13.

(E) As to the rejection of claims 1, 3, 4, 11-13, 15 and 19 under 35 U.S.C. 102(b) as being anticipated by Hanagata, the Examiner has reviewed applicant's arguments, however, the rejection is maintained. As to the rinsing step requirements, this has been deleted from claim 1 by the July 2, 2006 amendment, and thus is not a requirement of claim 1.

(F) As to the rejection of claims 10, 14 and 17 using Hanagata in view of Nakatsugawa, this rejection is not made.

(G) As to the other pending rejections, these have been further provided in light of applicant's amendments to the claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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PRIMARY EXAMINER